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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,521	10/06/2003	Charles J. Neef	32850	3997
23589	7590	02/23/2006		
HOVEY WILLIAMS LLP 2405 GRAND BLVD., SUITE 400 KANSAS CITY, MO 64108			EXAMINER KELLY, CYNTHIA HARRIS	
			ART UNIT	PAPER NUMBER

1752

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,521

Applicant(s)

NEEF ET AL.

Examiner

Cynthia H. Kelly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 120105.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-24, 26-29, 31-45, 47-53 and 55-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-24, 26-29, 31-53, 55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

Claims 8, 9, 10, 19, 20, 24, 40, 41, 52 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's reference to the term, "compound" in claim 8 and 24 is confusing.

Claim 8 depends from claim 1, which refers to 2 different compounds. It is not clear as to which compound applicant is referring.

Claim 9 and 10, 24, 40, 41, 52 and 55 refer to "O" as being selected from cyclic, acyclic, aliphatic and aromatic **compounds**. However, the groups described would not represent compounds. Applicant is urged to use another term such as components or delete reference to "compounds" altogether.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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1. Claim 16, 17, 18, 21, 22 and 23, 48 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Puligadda et al. , US pat. No. 6,670,425

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Puligadda teaches a compound have two moieties as in instant claim 16. See structures in column 5 and 6. The structures have a MW wt. less than 5000g/mole. The compound has an anthracene chromophore attached. The composition has crosslinking agents and a solvent system as in instant claims 22 and 23. See column 3, lines 5-33. Puligadda also teaches a precursor structure as in claim 48 having a substrate and anti-reflective layer having a compound have the moieties shown in claim 48. See column 6.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1-3, 5- 24, 26-29, 31-44, 45,47, 48-52, 53, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavelchek et al., U.S. pat. No. 6316165 in view of Levy et al.

Pavelchek teaches a planarizing antireflective coating (ARC0 for use with a photoresist and photolithographic method. As shown in figure 1, the substrate has a hole defined by a bottom wall and sidewalls. Pavelchek teaches applying a composition comprising a solvent and a plurality of components with at least about 95% of the components having a molecular wt. of less than about 5000 g/mole of component. In example 3, Pavelchek teaches a polymer having a low molecular wt. of 2337. Pavelchek teaches an epoxide to combine with a crosslinker (powderlink 1174), a photoacid generator (PAG) and an acid (p-toluenesulfonic acid). Claims 4 and 5 teach the polymer has a mole wt less than 5000 or 3000.

The crosslinker and acid components are identical to components taught on page 6 of the instant specification. The amount of crosslinker (11%) is less than 25% as taught in the instant specification on page 6. See example 5 that discloses the photoacid generator having a mole wt. of 624 and acid having a mole wt. of 192 thus meeting the limitation of at least 98% of said components having a mole wt of less than 5000 and at least 95% of said components having a mole wt of less than 2000. Example 5 also shows ethyl lactate as the solvent with the composition coated on a silicon substrate, cured by heating to 175 degrees C, coated with a photoresist and developed as in claims 24 and 26-29.

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In column 6, lines 7-11, Pavelchek teaches a polymer may be glycidyl novolac, which has an epoxy group. Reaction with anthracene carboxylic acid gives' applicant's invention of forming a product where the circle is the aromatic ring. Pavelchek does not teach a compound having at least 2 epoxy groups. Levy, in analogous art, teaches a compound having two or three epoxy groups which is to be polymerized with an acrylate monomer. It would have been obvious to one of ordinary skill in the art to use the epoxy compound of Levy in the composition of Pavelchek and react with the anthranyl carboxylic acid for the formation of a conformal ARC layer because Pavelchek teaches a resin of epoxy novolac with anthranyl carboxylic acid form ARCs that are highly planarizing. The use of one or two epoxy groups would be expected to result in the polymer composition, absent any evidence to the contrary. It has already been shown in the art what the end result is when combining an epoxy and anthranyl carboxylic acid. Additional epoxy groups combined with additional anthranyl carboxylic acid groups would be expected to act in a similar manner.

The ARC composition shown in column 3, lines 34-38 is used at 193 nm so it will absorb at least 95% of the light because the purpose of a bottom ARC composition is to absorb essentially 100% of the light to limit reflection back into the photoresist layer so the photoresist patterns have good shape and retention. The method of claims 24 and 31 also obvious because the method is the same method whether one or more epoxy and anthranyl carboxylic acids groups are involved.

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4. Applicant's arguments filed November 21, 2005 have been fully considered but they are not persuasive.

Applicant argues that the combination of Pavelchek and Levy is in error and considers the references non-analogous art. The examiner disagrees. Both references are drawn to photosensitive compositions and their use of the same types of polymers. Applicant further argues that even if the references were from analogous art, there would be no reason to use the compounds of Levy with the compounds of Pavelchek. The examiner disagrees. Levy's compounds are extremely similar to those of Pavelchek, only lacking an additional epoxy group. There is a reasonable expectation of success when employing only an additional epoxy group to an additional Nathaniel carboxylic acid. The result would be expected to be the same, absent any evidence to the contrary.

The 102 rejection has been withdrawn due to the amendments to the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary Ashton whose telephone number is 571 272-1326.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached on 571 272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

CAITLIN M. KELLY
SUPERVISOR
T. 10/10/10

Caitlin M. Kelly